Annexure 1.2:

Main Technical References

Contents

1 GENERAL

1.1 Purpose of the Document

1.1.1 The purpose of this document is to provide the Main Technical Requirements ("MTR") which from part of the minimum Requirements of the Passenger Rail Agency of South Africa ("PRASA") for the planning, design, supply, construction, installation, testing, commissioning and maintenance of a new and expanded fully integrated, functional, complete and future-proofed National Global System for Mobile Communications-Railway ("GSM-R") Redundancy Network in PRASA's Gauteng ("GP"), KwaZulu-Natal ("KZN") and Western Cape ("WC") service regions ("the Project") that the Bidder shall meet and deliver at the Bidder's cost therefore within the Bid Price.

1.2 Executive Overview

1.2.1 Notwithstanding any other PRASA Requirements stated throughout the RFP, the Bidder shall uncompromisingly deliver the whole of the Works required to achieve successful delivery of the Project.

1.2.2 The specifications, standards, regulations and procedures listed forms part of the Technical Requirements.

1.2.3 The contents of the General Technical Requirements ("GTRs") shall prevail in the event of a conflict between the referenced document and the GTRs.

1.2.4 All standards in this Bid specification (CENELEC, DIN, etc.) are given to describe the level of characteristic required. Any other standard equivalent or higher are acceptable. The standards adopted by the Bidder shall be approved by international, independent and qualified railway authorities.

1.2.5 The latest version of all standards, specifications, regulations and procedures shall be applicable, accept where explicitly stated otherwise.

1.2.6 The Bidder shall provide any other Works, activities and resources required to achieve a fully integrated, functional, complete and future-proofed GSM-R System and Network and meet any other requirements and specifications as required by all applicable legislation, regulations and by-laws and as requested throughout the RFP or as otherwise instructed in writing by PRASA.

2 MINIMUM APPLICABLE REGULATIONS, STANDARDS, SPECIFICATIONS AND REGULATIONS

2.1 General

DOCUMENT NO.	DOCUMENT DESCRIPTION
South African Regulations	
	The Engineering Profession Act, 46 of 2000
	Occupational Health and Safety Act, 1993 (Act 85 of 1993)
	Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993)
	Explosives Act No 26 of 1956 (as amended)
	SATS Legal Succession Act (Act No.9 of 1989)
SANS	
SANS3000:1	Railway Safety Management - General
SANS3000:2-1	Technical requirements for Engineering and operational standards - General
SANS3000:2-2	Technical requirements for Engineering and operational standards – Track, civil and electrical infrastructure
SANS3000:2-2-1	Technical requirements for Engineering and operational standards – Track, civil and electrical infrastructure – Level Crossings
SANS3000:2-4	Technical requirements for Engineering and operational standards – Train authorization and control systems and Equipment
SANS3000:2-5	Technical requirements for Engineering and operational standards – Train operations management
SANS3000:2-6	Technical requirements for Engineering and operational standards – Interoperability, intermodal and utilities management
SANS3000:3	Railway occurrence management
SANS3000:4	Human factors management
SANS3000:5	Railway stations
PRASA/TFR	
	Asset Disposal Form
	Train Working Rules
	Rolling Stock specification
E7/1	Work on, over, under and or adjacent for railway lines and near high voltage Equipment.
CENELEC	
EN50121-1	Railway applications - Electromagnetic compatibility - Part 1: General
EN50121-2	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway System to the outside world

DOCUMENT NO.	DOCUMENT DESCRIPTION
EN 50126	Railway applications – Specification and demonstration of Reliability, Availability, Maintainability and Safety (“RAMS”)
EN50125-3	Railway applications – Environmental conditions for Equipment
EN61000-6-2	EMC: Immunity for industrial environments
IEC	
IEC 62128-1	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock
IEC 61000-4	Electromagnetic compatibility (“EMC”) – Part 4-1 to 4-11: Testing and measurement techniques
ISO	
ISO 9001	Quality systems – model for quality assurance in design, development, production, installation and serving

2.2 Telecommunication

DOCUMENT NO.	DOCUMENT DESCRIPTION
CENELEC	
EN 50121-4:	Railway applications- Electromagnetic compatibility (EMC)- Signalling and Telecommunication
EN50128:	Railway applications – Software for railway control and protection systems
EN50129:	Railway applications - Safety related electronic systems for signalling
EN50159-1:	Railway applications – Signalling and communications – Safety-related communication in closed transmission systems
EN50159-2:	Railway applications – Signalling and communications – Safety-related communication in open transmission systems
IEC	
IEC 60068-2-64	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
IEC 60068-2-29	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock
IEC/TS 62443	Industrial communication Network – Network and System security
ISO/IEC 27000	Information Technology — Security techniques — Information security management systems